

CLAIMS

What is claimed is:

1. A clamp comprising:
a body;
a locating pin having a longitudinal axis, said locating pin being coupled to said body;
a clamping arm rotatable about an axis substantially parallel to said longitudinal axis; and
an actuator movably supported by said body, said actuator being axially moveable between a retracted position and an extended position, said actuator including a cam rod drivingly coupled to said clamping arm, wherein said cam rod rotates about said longitudinal axis in response to axial movement of said actuator, said clamping arm being moveable between a first position substantially beneath an exterior surface of said locating pin and a second position at least partially extending beyond said exterior surface.
2. The clamp of claim 1 further including a drive pin fixed to said body, said drive pin being slidingly positioned within a slot of said cam rod.
3. The clamp of claim 2 wherein said locating pin axially translates with said actuator.

4. The clamp of claim 3 wherein said actuator includes a piston slidably positioned within a bore of said body.

5. The clamp of claim 1 wherein said actuator includes an outer rod having a bore, said cam rod being rotatably supported within said bore.

6. The clamp of claim 5 further including a key slidably positioned within a keyway of said outer rod to prevent rotation of said outer rod relative to said body.

7. The clamp of claim 1 further including a second clamping arm rotatable about a second axis offset from and substantially parallel to said axis.

8. The clamp of claim 7 wherein said cam rod includes a first region selectively engaging said clamping arm and a separate second region selectively engaging said second clamping arm.

9. The clamp of claim 8 wherein said first and second regions are substantially diametrically opposed.

10. The clamp of claim 1 wherein said clamp rod is restricted from rotation when said actuator is in said retracted position to maintain the location of said clamping member in said second position.

11. A clamp comprising:

a body;

an actuator moveably supported by said body, said actuator including a first rod having an internal cavity and a second rod rotatably positioned within said internal cavity;

a pin mounted to said body, a portion of said pin being positioned within a cam slot formed in said second rod; and

a clamping member drivingly coupled to said actuator, wherein said second rod rotates in response to linear movement of said first rod to position said clamping member.

12. The clamp of claim 11 wherein said first rod includes separable sections.

13. The clamp of claim 12 wherein said first rod includes first, second and third sections, said first section having a bulbous end and a hollow sleeve, said hollow sleeve being positioned within and coupled to said second section.

14. The clamp of claim 13 wherein said third section includes a bore and is coupled to said second section, a portion of said second rod being positioned within said bore.

15. The clamp of claim 13 wherein a portion of said second rod is positioned within said hollow sleeve.

16. The clamp of claim 11 wherein said clamping member is positioned within a transversely extending slot formed in said first rod.

17. The clamp of claim 16 wherein said clamping member is selectively positionable to at least partially protrude from said transversely extending slot.

18. The clamp of claim 17 wherein said second rod includes a face selectively engageable with a dog extending from said clamping member, said second rod operable to impart a torque to said clamping member.

19. The clamp of claim 11 further including a support coupled to said body, said support including a bore extending therethrough, portions of said first rod and said second rod being positioned in said bore.

20. The clamp of claim 19 wherein said support is selectively removable from said clamp to allow access to said first rod.

21. The clamp of claim 12 further including a support coupled to said body, said support including a bore extending therethrough, portions of said first rod and said second rod being positioned in said bore, wherein said support encloses a fastener interconnecting two of said separable sections.

22. A clamp comprising:

a first subassembly including a body and an actuator moveably positioned within said body;

a second subassembly detachably coupled to said first subassembly, said second subassembly including a substantially hollow locating pin and a clamping member, said clamping member being moveably positioned within a transversely oriented slot extending through said locating pin, said clamping member adapted for selectively engaging a workpiece, said actuator including a rotatable cam rod drivingly engageable with said clamping member; and

a support including an aperture extending therethrough, said support being coupled to said body, wherein a portion of said first and second subassemblies is positioned with said aperture, said first and second subassemblies being moveable relative to said support.

23. The clamp of claim 22 further including a retainer interconnecting said first and second subassemblies, said retainer being positioned within said aperture.

24. The clamp of claim 23 wherein said first subassembly includes a second clamping member moveably positioned within a second transverse slot, said second clamping member being selectively engageable with said cam rod.

25. The clamp of claim 23 wherein said first subassembly includes an extension tube coupled to said locating pin, said extension tube having a predetermined length corresponding to a height of said support.

26. A method of operating a clamp including a body, an actuator moveably supported by the body, and a clamping member, the actuator having first and second rods where the second rod is rotatably positioned with a cavity of the first rod, the method comprising:

linearly translating the actuator;

rotating the second rod relative to the first rod;

drivingly engaging a portion of the clamping member with the second rod;

and

moving the clamping member between first and second positions.

27. The method of claim 26 further including extending a portion of the clamping member beyond an external surface of the first pin when the clamping member is in the second position.

28. The method of claim 26 where the step of moving the clamping member includes rotating the clamping member about an axis offset from and substantially parallel to an axis on which the actuator is translated.